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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/323,020	06/01/1999	TATSUYA YAGUCHI	862.2851	8742

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EXAMINER	
ODOM, CURTIS B	

ART UNIT	PAPER NUMBER
2634	9

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/323,020	YAGUCHI, TATSUYA	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,10-14,16-28,30-34,37,38,40-42,45 and 47-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,10-14,16-28,30-34,37,38,40-42,45 and 47-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 June 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 16, 18-20, 30, 32-34, 40-42, 47, 48, and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Bi (previously cited in Office Action 11/19/03).

Regarding claim 1, Bi discloses a reception apparatus (Fig. 4) comprising:

a plurality of channel estimation means (Fig. 4, blocks 305 and 310, column 10, lines 25-34), wherein a power estimate is representative of a channel estimate;

combining means (Fig. 4, blocks 3335-338, column 10, lines 35-50) for combining signals from paths in accordance with outputs from the plurality of channel estimation means;

decoding means (Fig. 4, blocks 340, 342, 344, and 346, column 10, lines 51-61) for decoding the outputs from the combining means which respectively correspond to the plurality of channel estimation means; and

evaluating means (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8) for evaluating, based on errors of the outputs from the decoding means, the outputs from the combining means, which respectively correspond to outputs from the plurality of channel estimation means.

Regarding claim 2, which inherits the limitations of claim 1, Bi discloses the evaluating means comprises selection means for selecting one of the outputs from the combining means which respectively correspond to the plurality of channel estimation means in accordance with an evaluation (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8).

Regarding claim 3, which inherits the limitations of claim 1, Bi discloses the combining means comprises a plurality of combiners corresponding to the plurality of channel estimation means (Fig. 4, blocks 335-338, column 10, lines 35-50).

Regarding claim 4, which inherits the limitations of claim 1, Bi discloses each of the channel estimation means estimates a channel from a de-spread reception signal (column 10, lines 1-23).

Regarding claim 16, Bi discloses a reception apparatus (Fig. 4) comprising:

a plurality of channel estimation means (Fig. 4, blocks 305 and 310, column 10, lines 25-34), wherein a power estimate is representative of a channel estimate;

combining means (Fig. 4, blocks 335-338, column 10, lines 35-50) for combining signals from paths in accordance with outputs from the plurality of channel estimation means;

decision means (Fig. 4, blocks 340, 342, 344, and 346, column 10, lines 51-61) for performing symbol with respect to the outputs from the combining means which respectively correspond to the plurality of channel estimation means; and

evaluating means (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8) for evaluating the outputs of the combining means, which respectively correspond to the plurality of channel estimation means, in accordance with errors based on the decision made by the decision

means with respect to the plurality of channel estimation means, wherein the decoder is a decision means.

Regarding claim 18, Bi discloses and reception apparatus (Fig. 4) comprising:

a plurality of channel estimation means (Fig. 4, blocks 305 and 310, column 10, lines 25-34), wherein a power estimate is representative of a channel estimate;

combining means (Fig. 4, blocks 335-338, column 10, lines 35-50) for combining signals from paths in accordance with outputs from the plurality of channel estimation means;

detection means (Fig. 4, blocks 340, 342, 344, and 346, column 10, lines 51-61) for detecting errors of outputs from the combining means which respectively correspond to the plurality of channel estimation means, wherein the detection means comprises decoding means for decoding the outputs from the combining means, which respectively correspond to the plurality of channel estimation means, wherein the decoder detects errors by properly decoding the signals (column 10, lines 62-66); and

selection means (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8) for selecting one of the outputs from of the combining means on the basis of errors of outputs from the decoding means corresponding to the outputs from the combining means, which respectively correspond to the plurality of channel estimation means.

Regarding claim 19, which inherits the limitations of claim 18, Bi discloses the combining means comprises a plurality of combiners corresponding to the plurality of channel estimation means (Fig. 4, blocks 335-338, column 10, lines 35-50).

Regarding claim 20, which inherits the limitations of claim 18, Bi discloses each of the channel estimation means estimates a channel from a de-spread reception signal (column 10, lines 1-23).

Regarding claim 30, Bi discloses a reception apparatus (Fig. 4) comprising:

a plurality of channel estimation means (Fig. 4, blocks 305 and 310, column 10, lines 25-34), wherein a power estimate is representative of a channel estimate;

combining means (Fig. 4, blocks 335-338, column 10, lines 35-50) for combining signals from paths in accordance with outputs from the plurality of channel estimation means;

detection means (Fig. 4, blocks 340, 342, 344, and 346, column 10, lines 51-61) for detecting errors of outputs from the combining means which respectively correspond to the plurality of channel estimation means, wherein the detection means comprises decoding means for decoding the outputs from the combining means, which respectively correspond to the plurality of channel estimation means, wherein the decoder detects errors by properly decoding the signals (column 10, lines 62-66); and

selection means (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8) for selecting one of the outputs from of the combining means in accordance with errors based on the decision made by the decision means with respect to the plurality of channel estimation means, which respectively correspond to the plurality of channel estimation means.

Regarding claims 32-34, the claimed method includes features corresponding to the above rejection of claims 1, 2, and 4 which is applicable hereto.

Regarding claims 40-42, the claimed method includes features corresponding to the above rejection of claims 16, 18, and 20 which is applicable hereto.

Regarding claims 47, the claimed method includes features corresponding to the above rejection of claims 30 which is applicable hereto.

Regarding claim 48, which inherits the limitations of claim 16, Bi discloses the evaluating means comprises selection means for selecting one of the outputs from the combining means which respectively correspond to the plurality of channel estimation means in accordance with an evaluation (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8).

Regarding claim 53, which inherits the limitations of claim 40, Bi discloses the evaluation comprises a selection step of selecting one of the combination results obtained in the combining step for the plurality of channel estimations.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 6, 10-14, 17, 21, 22, 25-28, 31, 37, 38, 45, and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bi (previously cited in Office Action 11/19/03).

Regarding claims 5 and 6, Bi does not disclose the channel estimation means estimates a channel by an interpolation of double slot averaging method. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that these methods could have been used to produce an accurate channel estimate in the same manner as the channel

estimators of Bi. There are many known techniques of channel estimation and thus choosing one is deemed a design choice and does not constitute patentability.

Regarding claims 10 and 11, which inherit the limitation of claim 1, Bi discloses using pilot symbols to perform coherent detection in a receiver (column 5, lines 44-50) but does not disclose evaluating the outputs from the combining means with respect to pilot symbols or periodically received pilots. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that although Bi does not require pilot symbols for evaluation that it is well known in the art to use pilot symbols when evaluating received signals for detection of the transmitted signals. Thus, using pilot symbols for evaluation does not constitute patentability.

Regarding claims 12 and 13, which inherit the limitation of claim 1, Bi does not disclose evaluating the outputs from the combining means in units of frames or in units of frames including frame error detection codes. However, it would have been obvious to one skilled in the art at the time the invention was made that if the data were transmitted from the transmitter in units of frames with error detection codes that the data would have been evaluated in units of frames with error detection codes. FEC encoders are well known in the art and are used to transmit data in units of frames with error detection codes. Thus, transmitting data in units of frames is deemed a design choice and does not constitute patentability.

Regarding claim 14, which inherits the limitation of claim 1, Bi discloses the evaluating means comprises selection means (Fig. 4, blocks 347 and 348, column 10, line 62-column 11, line 8) for selecting one of the outputs from of the combining means which respectively correspond to the plurality of channel estimation means. Bi does not disclose the outputs are in

units of frames. However, it would have been obvious to one skilled in the art at the time the invention was made that if the data were transmitted from the transmitter in units of frames that the data would have been evaluated in units of frames. Thus, transmitting data in units of frames is deemed a design choice and does not constitute patentability.

Regarding claim 17, which inherits the limitations of claim 16, Bi discloses the evaluating means evaluates the outputs from the combining means in accordance with errors based on the decision made by the decision means with respect to the plurality of channel estimation means (column 10, lines 62-66), wherein the evaluation is based on properly decoded signals (without errors). Bi does not disclose this evaluation is based on an average of errors. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that an average of errors would have been a better approximation of the amount or errors generated by the decision means. Thus, looking at an average of errors is deemed a design choice and does not constitute patentability.

Regarding claims 21, 22, and 25-28 the claimed apparatus includes features corresponding to the above rejection of claims 5, 6, and 10-13 which is applicable hereto.

Regarding claims 31, the claimed method includes features corresponding to the above rejection of claim 17 which is applicable hereto.

Regarding claims 37 and 38, the claimed method includes features corresponding to the above rejection of claims 10 and 12 which is applicable hereto.

Regarding claim 45, the claimed method includes features corresponding to the above rejection of claim 13 which is applicable hereto.

Regarding claims 49 and 50, the claimed apparatus includes features corresponding to the above rejection of claims 5 and 6 which is applicable hereto.

Regarding claims 51 and 52, the claimed method includes features corresponding to the above rejection of claims 5 and 6 which is applicable hereto.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bottomley et al. (U. S. Patent No. 6, 335, 954) discloses a plurality of channel estimation means, wherein the outputs of the channel estimation means are combined and evaluated.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
April 29, 2004

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